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F. D. Dryden

## Hormel Foods Research Report

Attention: W. Thielen - CO L. Huston - CO

Project Name: CURE 81® Hams processed in the Radiant Wall Oven

**Copy List:**

M. Benson - R&D	D. Scheidt - CO	G. Ray - CO
J. Swedberg - CO	R. Slavik - CO	D. Ruzek - R&D
M. Slette - CO	R. Chuick - CO	D. Wurst - R&D
S. Kerber - CO	G. Paxton - CO	

Written By: S. Hoevet - 5822 *SPH* J. Ulrich - 5810 *JHU*

**Objective:**

Evaluate CURE 81® Hams processed in the Radiant Wall Oven

**Summary:**

**Product Shown:**

- Production CURE 81® Hams of varying degree of color
- Production CURE 81® Hams, varying color processed in the RWO
- Modified Smoke Cycle CURE 81® Hams processed in RWO
- Regular Smoke Cycle VA15 added CURE 81® Hams processed in RWO
- Modified Smoke Cycle VA15 added CURE 81® Hams processed in RWO

All product processed through the RWO oven had a 20% solution of RA24-P liquid smoke applied for 4 seconds and was processed at 1000°F. for 60 seconds.

The RWO oven improved the color of all hams. The light, medium and dark production hams showed uniform color with good reds after processing.

The R&D modified smoked, steam cooked hams also showed good uniform color with good reds and no rind. However, more exterior smoke flavor was desired. Longer smoke at the beginning of the cook cycle would address this concern.

The hams with VA15 starch added in the regular smoke cycle showed a smudgy appearance for control, but excellent red color after processing in the RWO.

**Recommendation:**

Next steps will be determined by Marketing and Operations. Discussion was held concerning putting a production sized unit in Osceola for testing.

pjh (15565)

**Confidential  
Restricted Access  
U-06926**

PTO-004185

March 23, 1998  
Austin, MN  
MP360.10

## **PROTOCOL: RWO HAM TESTS / OSCEOLA**

### **Objective: First Week**

1. Determine an acceptable smoke / cook cycle for the new Cure-81 ham which will deliver a good smoke flavor on the product after going through the RWO oven.
2. Determine cooling requirements prior to packaging: time and temperature.
3. Determine RWO settings and drench solution level for optimum color.
4. Determine shadowing effect and minimum ham spacing through RWO / R&D and Operations visual evaluation.

**Methods:** Osceola will produce Small Cure-81 hams with the new process using potato starch, processed to 170° F. Internal Temperature.

1. Process 75 hams each with three different smoke / cook cycles.
  - 2a. Cool hams to 34° F. as per normal Osceola procedure.
  - 2b. Cool hams to 40° F. as per normal Austin procedure.
3. Run 8 hams each at 17.5%, 20%, and 22.5% with RA24-P smoke for 40 seconds, 50 seconds, and 60 seconds dwell time with the RWO temperature set at 1000 ° F. Six hams from each test will be packaged and put in a case to be returned to R&D.
4. Using 20% smoke solution with RWO set at 1000° F. with 60 second dwell:
  - a. package 2 hams at 0 minutes, 1 minute, 2 minutes, 3 minutes, 4 minutes and 5 minutes taking surface temperature at exit of RWO and at packaging.
  - b. record temperatures and identify hams for visual evaluation of moisture in the bag by R&D and operations after 24 hours.
  - c. repeat test using 40° F hams the following day
5. Return all hams to Austin and have 2 cuttings.
  - a. The first cutting will determine acceptable visual color before cooking.
  - b. After acceptable colors have been determined, a second cutting will be held where one each of acceptable colored hams will be cooked to determine optimum flavor.
  - c. Take Minolta readings on all "pass" hams at cutting.

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U-06916**

**PTO-004186**

**Objectives Second Week:**

1. Determine statistical acceptable Minolta color value.
2. Shelf life.
3. Fade tests.

**Method:** Osceola will produce Small Cure-81 hams with starch, to 170° F. internal temperature

1. Process 150 hams for each acceptable RWO test using approved flavor smoke/cook cycle.
2. Run hams through RWO using parameters approved at R&D cutting for color.
3. Take Minolta colors on 100 hams of each test / 5 readings per ham.
  - a. Hams must be identified so follow up Minolta readings can be taken to measure fading during shelf life studies.
  - b. Identified hams will be read with Minolta after packaging to fade test readings can be taken without opening ham.
  - c. Hams will be read for fading at 30, 60 and 90 days.
4. 24 hams per test will be untouched and packaged for shelf life; 16 whole hams and 16 half hams.
  - a. All hams with Minolta colors designated for fade testing will not be part of the shelf life test.
5. All hams will be returned to R&D.
  - a. Designated hams will be placed in shelf life / and for fade test.
6. Balance of hams will be held for cuttings to make final determination of smoke cycle and RWO parameters.
7. When production unit of RWO is installed, this setting will be the control setting for initial production.

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U-06917**

**PTO-004187**

RWO TEST / OSCEOLA			
CURE-81 WITH VA 15 STARCH ADDED			
170 DEGREE INTERNAL TEMPERATURE			
TEST PROPOSAL 2			
TEST	SMOKE	LIQUID SMOKE	RWO DWELL
NO.	CYCLE	CONCENTRATION	TIME
1	1	17.5	40
2	1	17.5	50
3	1	17.5	60
4	1	20	40
5	1	20	50
6	1	20	60
7	1	22.5	40
8	1	22.5	50
9	1	22.5	60
10	2	17.5	40
11	2	17.5	50
12	2	17.5	60
13	2	20	40
14	2	20	50
15	2	20	60
16	2	22.5	40
17	2	22.5	50
18	2	22.5	60
19	3	17.5	40
20	3	17.5	50
21	3	17.5	60
22	3	20	40
23	3	20	50
24	3	20	60
25	3	22.5	40
26	3	22.5	50
27	3	22.5	60
Additional 10 hams will be run at 34 degrees and 10 hams at 40 degrees for moisture in the bag visual evaluation. These will be run using a 20% solution with RWO set at 1000 degrees and 60 second dwell.			

## PERSONNEL AND EQUIPMENT NEEDED FOR OSCSEOLA TESTS

### WEEK ONE

#### Equipment

2 Solomats with hypodermic probes / R&D  
1 infrared thermometers / R&D  
RA24-P liquid smoke / Osceola  
2 grey tubs / Osceola  
scale / Osceola  
pitcher R&D  
floor fans / Osceola  
clip boards / R&D  
paper R&D  
pencils R&D  
marking pens R&D  
packaging label tape R&D  
control hams from R&D R&D  
4 pr. elbow length green gloves / Osceola

#### Personnel: Minimum of 6 people

Solomat and Infrared operator  
Temperature recorder  
RWO drench and loader  
RWO operator  
Labeler and marker at packaging  
Case Loader and labeler

Osceola personnel will strip hams and load them into a gondola for tests

If conveyer belt is not continuous, extra people will be needed to transfer hams.

Personnel requirements do not include back-ups for any station.

### WEEK TWO

#### Equipment

grey tubs / Osceola  
Scale / Osceola  
pitcher / R&D  
RA24-P liquid smoke / Osceola  
Minolta camera ? R&D  
2 solomats with hypodermic probes / R&D  
1 infrared thermometer / R&D  
clip boards / R&D  
paper / R&D  
pencils / R&D  
marking pens / R&D  
packaging label tape / R&D  
laptop computer / R&D  
floor fans / Osceola  
control hams from first week / R&D  
4 pr. elbow length green gloves / Osceola

#### Personnel: Minimum of 7 people

Minolta / computer operator  
RWO drench and loader  
RWO operator  
Solomat / Infrared operator  
Temperature recorder  
2 package markers

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U-06919**

PTO-004189

cc: F.D. Dryden/file

MP360.10  
Austin, Minnesota  
March 26, 1998

**LARRY HUSTON - CO**  
**RICH CHUICK - CO**  
**JIM MINO - CO**  
**ART GOEMBEL - R&D**  
**STEVE HOEVET - R&D**  
**JAN ULRICH - R&D**  
**DAVE RUZEK - R&D**

**Re: RWO TESTING AT OSCEOLA**

The attached is a draft of the protocol for testing the RWO unit at Osceola. Please review, and if you have any changes, please call. After review, Rich will forward this on to personnel at Osceola.

This testing is set to begin April 6. Art Goembel will be running the smoke cycles, and Steve and Jan will be running the RWO. A cutting is scheduled to review the first week's product on Monday, April 13. After this cutting, we will make a final determination of the next steps.

  
**MIKE BENSON**  
5811

mlm (15852)

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**U-06915**

PTO-004190

MODIFIED HOT PROCESSING CYCLE  
FOR SMALL CIRCULAR HAM WITH MPS

5-5-98  
TO 170°F

<u>TIME (MINUTES)</u>	<u>DRY BULB °F</u>	<u>WET BULB °F</u>	<u>%RH</u>	<u>DAMPEN SETTING</u>	<u>EXHAUST FAN</u>	<u>SMOKER</u>
60	150	117	37	AUTO	HIGH	
60	150	123	45	Auto	Low	
60	160	135	49	Auto	OFF	ON
60	160	140	57	Auto	Low	
60	170	150	59	Auto	Low	
60	0	175	100	STEAM GUN*	OFF	
120 **	0	185	100	STEAM GUN*	OFF	

\* SUPPLY FAN ON

\*\* TO 170°F

DAVE:

What are your thoughts  
on Dave's cycle? too Aggressive?

Art

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Restricted Access  
U-06900

PTO-004191





**A WORLD OF STAINLESS STEEL PRODUCTS**

**Proposal for:**

**Eric Ludwig - Tom Katen  
COOPER FOODS**

**1108 West Hartford Avenue  
Ponca City, OK 74601**

**Telephone: (580) 762-0197**

**Fax: (580) 762-0199**

**e-mail: [unitherm@unithermfoodsystems.com](mailto:unitherm@unithermfoodsystems.com)**

**Visit our web site at [www.unithermfoodsystems.com](http://www.unithermfoodsystems.com)**

UNITHERM FOOD SYSTEMS INCORPORATED  
1108 WEST HARTFORD  
PONCA CITY, OKLAHOMA 74601  
TELEPHONE: 405-762-0197  
FAX: 405-762-8199



A WORLD OF STAINLESS STEEL PRODUCTS

July 16, 1998

Mr. Eric Ludwig  
Mr. Tom Katen  
COOPER FOODS  
6793 U.S Highway 127  
Van Wert, OH 45891

RE: Quote # 615DH

Dear Sirs:

I am pleased to offer our quote on the following equipment:

### **UNITHERM Infra-Red Grill**

#### **Material**

The machine is fabricated from Grade 304 Stainless Steel. It is fully welded and is crack and crevice free.

#### **Function**

The operating temperature can be reached after 10 minutes of energizing the system. Operating temperature is 1200° F.

The machine is fitted with an infeed exhaust canopy and an exit canopy. There is an integral belt wash that can be run continuously during operation, or intermittently as needed.

#### **Footprint**

See enclosed Drawing # SA-0129.

#### **Service Connections**

Electric - 460 / 3 / 60 100 amp  
Water - 1" NPT mains water (Belt Washer)

*Visit our web site at [www.unithermfoodsystems.com](http://www.unithermfoodsystems.com)*

**Cooper Foods Throughput**

**Maillose Product**

The oven length is 102"; therefore, the unit will hold 12 pieces. A dwell time of 90 seconds = 480 units per hour = 2,112 lbs per hour.

Yield = 97 percent

**Smoke Product**

At 8.5 pieces in the oven, throughput is 340 units per hour, or 2,720 lbs per hour, assuming that each unit weighs 8 lbs.

Yield = 98 percent

**Notes:**

Emergency Stop fitted to both ends.

Removable motor shield.

Purge removal time is 45 seconds.

Central support removed and heavier gauge wire belt.

Heat system for underside of belt independently run.

Price: \$84,500

**UNITHERM In-Line Smoke Unit**

**Material**

Fabricated from Grade 304 Stainless Steel, with integral reservoir, low-level indicator, and filtration system.

**Service Connections**

Pneumatic Air @ 80 psi max. (liquid smoke pump)

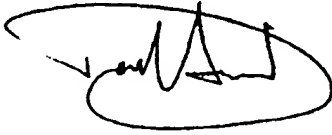
Price: \$21,800

Visit our web site at [www.unithermfoodsystems.com](http://www.unithermfoodsystems.com)

**July 16, 1998**

All pricing is F.O.B. Ponca City, Oklahoma. Terms are 45 percent with an authorized purchase order, 45 percent of contract price prior to shipment from our facility, and the 10 percent balance due within 10 days of delivery.

Yours sincerely,

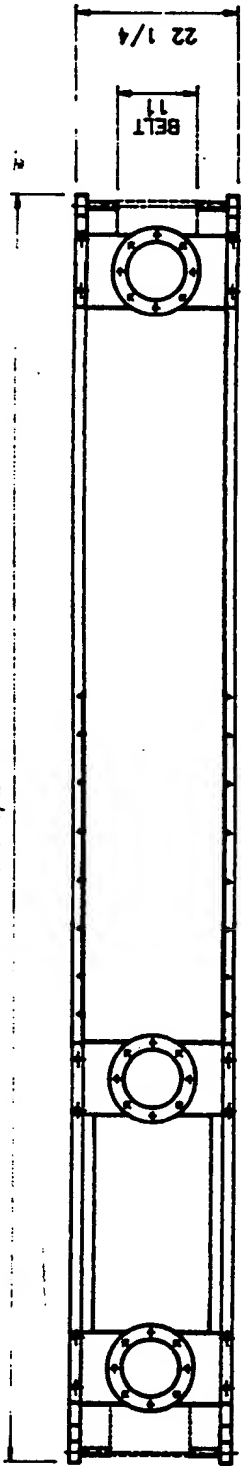
A handwritten signature in black ink, enclosed within a hand-drawn oval. The signature appears to be "David Howard".

**David Howard  
President**

DO NOT SCALE IF IN DOUBT ASK

CONTROL PANEL  
(POSITIONED BY CUSTOMER)

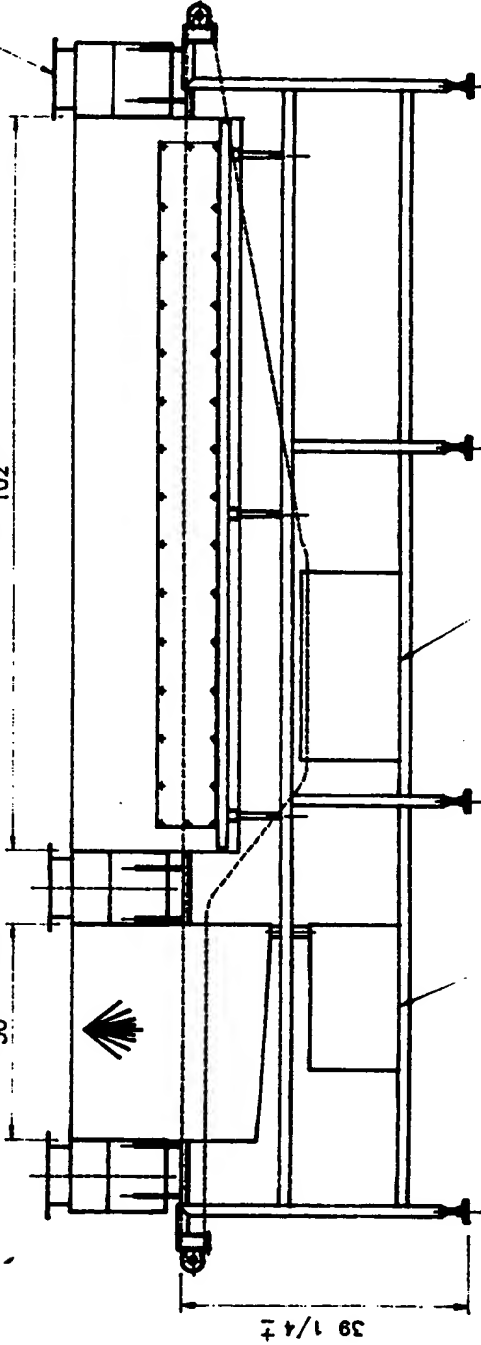
175 1/2



SMOKE LENGTH  
30

GRILL LENGTH  
102

EXHAUST CANOPY



BELT WASHER

SMOKE TANK

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**UNITHERM**  
FOOD SYSTEMS  
DESIGN AND MANUFACTURE  
1108 WEST HARTMAN  
PO BOX 677  
TULSA, OK 74106  
TEL. 918.487.7441 FAX 918.487.7442  
E-MAIL [unitherm@unitherm.com](mailto:unitherm@unitherm.com)

TITLE  
SMOKE - GRILL LINE  
COOPER FOODS  
CONTRACT NO.  
SCALE NTS  
DATE 7-9-98  
DRAWN CF

DRAWING No. SA\_0129 A

UNITHERM FOOD SYSTEMS, INC.  
1108 WEST HARTFORD AVE.  
PONCA CITY, OKLAHOMA 74601  
TELEPHONE: 580-762-0197  
FAX: 580-762-0199  
E-MAIL: [unitherm@unithermfoodsystems.com](mailto:unitherm@unithermfoodsystems.com)



A WORLD OF STAINLESS STEEL PRODUCTS

August 3, 1998

Mr. Jeffrey Craft  
PRETTY, SCHROEDER & POPLAWSKI  
444 South Flower St., 19th Floor  
Los Angeles, CA 90071-2909

*Via Fax # 213-489-4210*

Dear Mr. Craft:

I enclose Confidentiality Agreements signed by Prem Singh and Chris Salm on February 24, 1998.

Your client was allowed to view trade secrets developed by Unitherm. They then took these trade secrets and used them to have our process bid against us. This had the effect of educating our competitors.

We deny that Armour Swift-Eckrich representatives introduced any intellectual property to Unitherm.

Yours sincerely,

A handwritten signature in black ink, appearing to read "David Howard", enclosed within a hand-drawn oval.

David Howard  
President

U-04391

Visit our web site at [www.unithermfoodsystems.com](http://www.unithermfoodsystems.com)

PTO-004197

UNITHERM FOOD SYSTEMS, INC.  
1108 WEST HARTFORD AVE.  
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A WORLD OF STAINLESS STEEL PRODUCTS

August 20, 1998

Mr. Jeffrey Craft  
PRETTY, SCHROEDER & POPLAWSKI  
444 South Flower St., 19th Floor  
Los Angeles, CA 90071-2909

*Via Fax # 213-489-4210*

Dear Sirs:

I offer the following so that there can be no confusion over the issue of Unitherm trade secrets.

Unitherm introduced an in-line smoking and roasting system to Armour Swift-Eckrich beginning in 1995 when we at Unitherm agreed to install an oven for evaluation of the process. At that time it was agreed with President Arni Mickelberg and Vice President Ted Berry that if the process produced the promised results, orders would be placed. Indeed, an order was to be placed, on information supplied by J. B. Weatherspoon, head of Research and Development at the time. The order, however, never was placed.

Armour Swift-Eckrich then re-visited Unitherm in February of 1998. At this time, they were shown the following equipment:

- A) In-Line Bag Stripper
- B) In-Line Purge Removal
- C) In-Line Smoke Applicator for Turkey Loaves
- D) Auto Indexer
- E) In-Line Continuous Convection Oven

Unitherm's position is that if Armour Swift-Eckrich uses any of the process technology learned at Unitherm then they would be in breach of their agreement. At the time of testing in 1995 and in 1998, Armour Swift-Eckrich was not using any of these in-line processes. However, it has become apparent that Armour Swift-Eckrich has selected an alternative supplier to Unitherm, having first gained the knowledge of the process from Unitherm. We have been told that we were disqualified from supplying because of a pre-existing relationship with a larger machinery supplier.

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PTO-004198

U-04399

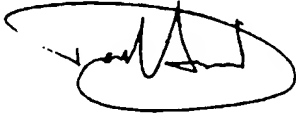
*Jeffrey Craft*

*Page 2*

*August 20, 1998*

Would you acknowledge that the above events indeed have occurred? And would you accept that Armour Swift Eckrich should not pursue in-line smoking in the format of the processes introduced to Armour Swift-Eckrich by Unitherm?

Yours sincerely,

A handwritten signature, likely of David Howard, is enclosed within a hand-drawn oval. The signature is stylized and appears to be written in ink.

David Howard  
President

DH900PSP

Visit our web site at [www.unithermfoodsystems.com](http://www.unithermfoodsystems.com)

U-04400

PTO-004199



UNITHERM FOOD SYSTEMS, INC.  
1108 WEST HARTFORD AVE.  
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E-MAIL: [unitherm@unithermfoodsystems.com](mailto:unitherm@unithermfoodsystems.com)



A WORLD OF STAINLESS STEEL PRODUCTS

August 25, 1998

Mr. Calvin Ferrell  
PERDUE FARMS, INC.  
*Via Fax # 540-828-7703*

RE: Quote # 627-a-DH

Dear Calvin:

I am pleased to provide the following revised quotation on your conveyor system.

### CONVEYORS FOR IN-LINE SMOKING SYSTEM

#### CV1 Vertical Elevator

This will accommodate four loaves or one 40"-long log. There will be a loading station at the base, mounted in part to the vertical conveyor. This will include gravity rollers to assist the unloading of the rack. The elevator will also work in reverse to take the logs back down to the base.

There will be a red light and a green light at the top and at the bottom to allow the operators to signal each other. The drive will be inverter-controlled for variable speed.

We note that vertical height between floors is 24'-3".

The overall height of the conveyor will be 26'.

This will allow a loading platform at 34" in height and a discharge at 34".

Adjustment will be + / - 4".

The transfer cup would be manufactured from Grade 304 stainless steel.

Price (including transfer to Accumulation Conveyor):      \$ 38,000

*Visit our web site at [www.unithermfoodsystems.com](http://www.unithermfoodsystems.com)*

U-05418

PTO-004200

**CV2 Accumulation Conveyor**

18" wide × 15'-5" long mobile on lockable casters  
Variable speed drive  
Adjustable height +/- 3"

Price: \$ 8,200

**CV3 Transfer Conveyor**

40" wide × 17'-10" long  
Variable speed drive

Fabricated of Grade 304 stainless steel 2" × 2" box section with 40"-wide plastic belt. Height to marry with Chiller. Mobile on lockable casters.

Price (including transfer onto next conveyor): \$ 9,800

**CV4 Conveyor to Transport Product to Bagger**

15'-9" long × 12" wide

Price: \$ 6,900

**CV5 Feed Conveyor to Bagger**

The nose transfer of CV4 will keep orientation of 90° so that the length is offered into the bag on CV5 in gunshot mode. This will be a continuous flow. The running speed will be 11 units of product per minute, 24 units of smoked per minute. Adjacent to CV5.

Price: \$ 6,000

**Rotary Table**

This table will allow accumulation of the product between CV4 and CV5. It will have a lever arm to deflect the product onto CV5 to the bagger.

Price: \$ 9,000

U-05419

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**PTO-004201**

**CV6 Conveyor Feed to Shrink Tunnel**

16'-4" × 12" wide

Price: \$ 7,100

**CV7 Conveyor from Shrink Tunnel to Scale**

9' long × 16" wide with stop at scale end.

Price: \$ 6,000

**CV8 Conveyor from Taper to Palletizer**

6' long × 16" wide

Price: \$ 5,300

**CV9 Gravity Roller Conveyor**

6' long × 16" wide with stop on end.

Price: \$ 1,250

**CH1 Gravity Roller Chute**

10' long × 24" wide × 48" to 34" high

Price: \$ 1,750

**T1, T2, T3 Tables**

Price: \$ 275 each

**Return Conveyor**

As per enclosed drawing.

This would be supplied in four sections

U-05420

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**August 25, 1998**

**Section A - Sweeping bend to the Chiller**

**Section B - Mobile with locking casters**

**Section C would take product through the wall and onto a collating table for downloading. This section could be fixed or mobile.**

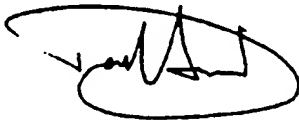
**Section D - Would be fixed and attached to the Chiller. There would be two lifting sections at the door for access.**

**Where connections are made, there will be a lock-in-place connection.**

**Price: \$ 36,500**

**As always, please feel free to contact me if you have any questions or need any further information.**

**Regards,**

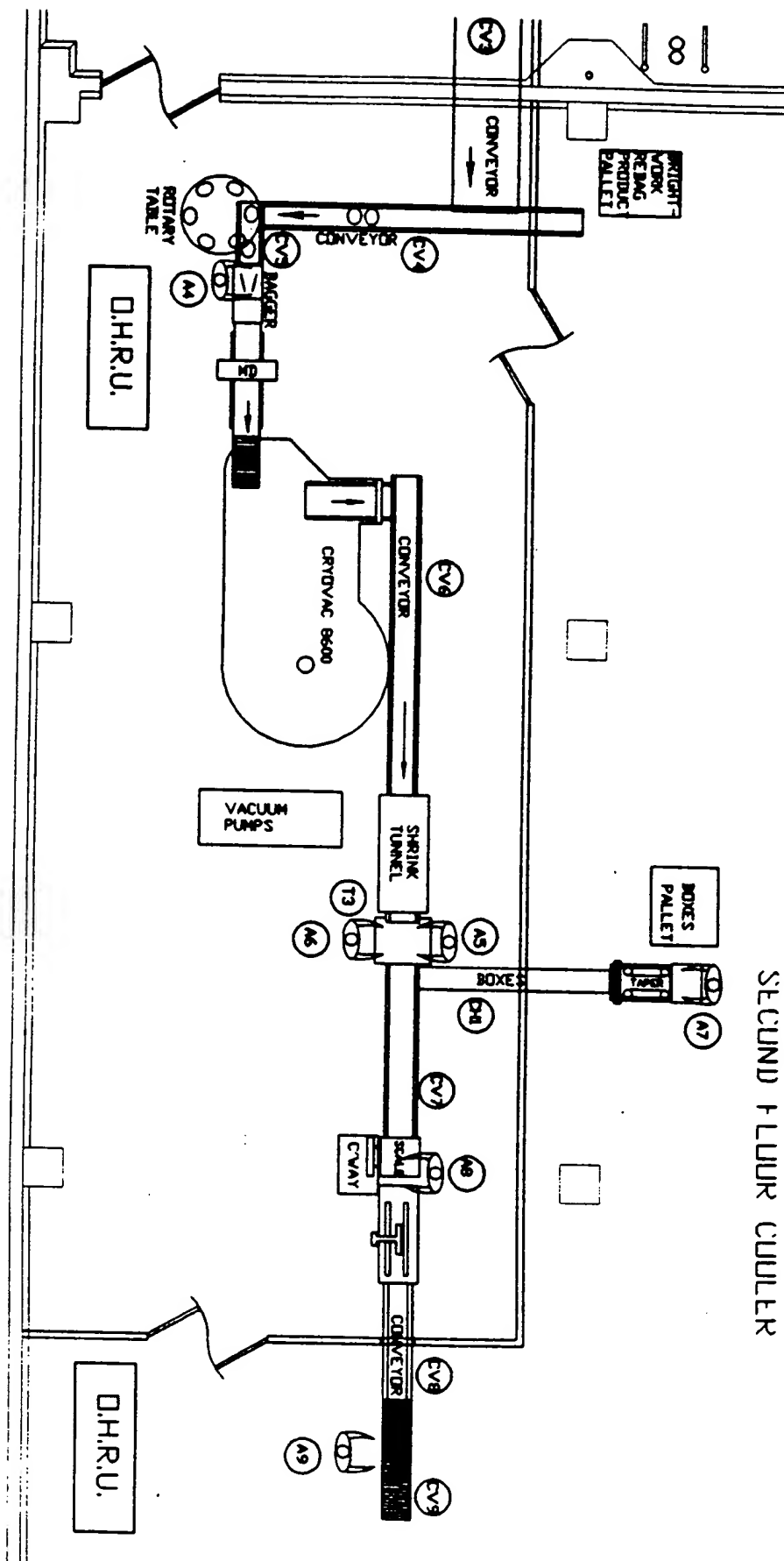
A handwritten signature in black ink, appearing to read 'David Howard', enclosed within a hand-drawn oval.

**David Howard  
President**

U-05421

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**PTO-004203**



U-05422

UNITHERM FOOD SYSTEMS, INC.  
1108 WEST HARTFORD AVE.  
PONCA CITY, OKLAHOMA 74601  
TELEPHONE: 580-762-0197  
FAX: 580-762-0199  
E-MAIL: [unitherm@unithermfoodsystems.com](mailto:unitherm@unithermfoodsystems.com)



A WORLD OF STAINLESS STEEL PRODUCTS

August 20, 1998

Mr. Calvin Ferrell  
PERDUE FARMS, INC.

*Via Fax # 540-828-7703*

Dear Calvin:

The following represents the four subjects discussed.

## **1. PRESS RACK**

I can confirm that we can produce a press that is compatible with your existing racks. It would be fabricated of Grade 304 stainless steel, of welded construction.

Price: \$ 3,400

Delivery: 4-6 weeks from receipt of purchase order and deposit

## **2. CONVEYORS FOR IN-LINE SMOKING SYSTEM**

### **(A) Vertical Elevator**

This will accommodate four loaves or one 40"-long log. There will be a loading station at the base, mounted in part to the vertical conveyor. This will include gravity rollers to assist the unloading of the rack. The elevator will also work in reverse to take the logs back down to the base.

We could add a CIP system for cleaning of the transfer cup. This would only be a consideration on the return of the logs. The product going up would be in bags.

Total height: 28'  
Discharge height: 36"

U-05423

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PTO-004205

Infeed height: 36" nominal  
Adjustment: + / - 4"

The transfer cup would be manufactured from Grade 304 stainless steel.

Price (including transfer to Accumulation Conveyor): \$ 38,000

**(B) Accumulation Conveyor**

15'-5" long × 12" wide

Price: \$ 6,900

**(K) Transfer Conveyor**

40" wide × 17'-10" long

Fabricated of Grade 304 stainless steel 2" × 2" box section with 40"-wide plastic belt. Height to marry with Chiller. Mobile on lockable casters.

Price (including transfer onto next conveyor): \$ 9,300

**(L) Conveyor to Transport Product to Bagger**

15'-9" long × 12" wide

Price: \$ 6,900

**(M) Conveyor Feed to Shrink Tunnel**

16'-4" × 12" wide

Price: \$ 7,100

**(N) 90° Bend with 2 Straight Sections**

Intralox-type belt

Price: \$ 8,400

U-05424

**(O) Conveyor to Palletizing Area**

12' long × 15" wide

Price: \$ 6,700

**Return Conveyor**

As per enclosed drawing.

This would be supplied in four sections

Section A - Sweeping bend to the Chiller

Section B - Mobile with locking casters

Section C would take product through the wall and onto a collating table for downloading. This section could be fixed or mobile.

Section D - Would be fixed and attached to the Chiller. There would be two lifting sections at the door for access.

Where connections are made, there will be a lock-in-place connection.

Price: \$ 36,500

**4. NETTING MARKS FOR SMOKED PRODUCT**

The current in-line smoke unit is a drench system which is ideal for all product that does not require net marks. If you test product with nets on, the result is darker lines where the white net marks would be. This is a result of the netting becoming fully saturated.

We have fitted a dual system to overcome this in the past so that the smoke is atomized onto the product. This takes the shape of 12 nozzles with control of the flow rate to each bank. The smoke is applied via a pressurized system.

The cost of adding this to the existing system is \$9,800.

**5. TEST PRODUCT**

I can confirm that we are in a position to have Vicki test product here at her convenience.

*Visit our web site at [www.unithermfoodsystems.com](http://www.unithermfoodsystems.com)*

U-05425

PTO-004207



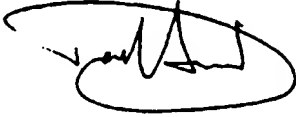
*Calvin Ferrell*

*Page 4*

*August 20, 1998*

As always, please feel free to contact me if you have any questions or need any further information.

Regards,

A handwritten signature, likely of David Howard, enclosed in a hand-drawn oval.

David Howard  
President

DH880CF

U-05426

Visit our web site at [www.unithermfoodsystems.com](http://www.unithermfoodsystems.com)

PTO-004208



PTO-004209

R&D Project #: MP360.10

Date: October 19, 1998  
Page 1

F.D. Dryden

### Hormel Foods Research Report

Attention: L. Huston - CO

J. Swedberg - CO

Project Name: RWO Hams

Copy List:

J. Mino - CO

J. Reid - R&D

B. Schricker - R&D

R. Chuick - CO

G. Paxton - CO

W. Thielen - CO

B. Farnsworth - CO A. Goembel - R&D

Written by: S. Hoeyet - R&D - 5822

J. Ulrich - R&D - 5810

Objective: Evaluate RWO hams made in Osceola.

Summary: A cutting was held at R&D on October 19, 1998. Those attending were J. Swedberg, L. Huston, J. Mino, J. Reid, B. Schricker, R. Chuick, B. Farnsworth, A. Goembel, J. Ulrich, and S. Hoeyet.

Ten hams each of eight test variations were run in Osceola the week of October 17, 1998. The test parameters were as follows:

	<u>Temperature</u>	<u>Time</u>	<u>Drench % *</u>
Test #1:	900	35 sec	14.5
Test #2	900	35 sec	17.5
Test #3	900	45 sec	14.5
Test #4	900	45 sec	17.5
Test #5	1100	35 sec	14.5
Test #6	1100	35 sec	17.5
Test #7	1100	45 sec	14.5
Test #8	1100	45 sec	17.5
Test #9	1000	40 sec	17.5
Control: Untreated			Previously approved

\* Smoke: Red Arrow RA24-P

Of these tests, Marketing preferred Test #5 and Test #6. Some scorching did occur at the 1100° level at 45 seconds. Less scorching occurred at the 35 second time. There was no discernible difference in the exterior flavor between the two drench levels.

The Minolta readings indicated the red color is on target but is being visually covered up by the brown color from the smokehouse.

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U-06896

PTO-004210

There are plans to change the smoke cycle in Osceola to increase the moisture, lighten the color, and make the stockinet more easily removed.

**NEXT STEPS**

1. Operations has requested R&D make a house of hams with a wetter cycle and more smoke for flavor to be run through the RWO the first week in November in Osceola.
2. Marketing would like to start with the originally approved parameters for the November tests and work upwards and downwards from there.
3. Operations and R&D will be looking at ways to check the smoke percentage of the drench solution.

**mhm (21042)**

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U-06897**

**PTO-004211**